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PROCEEDINGS

"How to Access a Fiber-Fed Loop in Ten Days"

Jonathan Askin: Hi, I'm Jonathan Askin, general counsel to ALTS, for those of you who don't know me. I'd like to invite the panelists to come up for the first panel. While they're coming up, that gives me an opportunity to give a couple of brief comments. When we first came up with the title for this panel, it was supposed to be a little bit tongue in cheek. At the time we came up with the title, there was a film out called "How to Lose a Guy in Ten Days," it was number-one at the box office.

Since then it's come and gone, it's probably on video momentarily. But we thought it was apropos because at that very moment it seemed we were about to lose – the CLECs were about to lose access to fiber-fed loops in not ten days, one day. Since "How to Lose a Guy in Ten Days" has left the theaters, we have yet to see an order from the FCC on how we are supposed to access fiber-fed loops. So it's pretty much anyone's guess at this point.

One other comment before I turn it over to Jeff Goldthorp. One time a couple years ago, when I was just starting to get involved in these issues, these remote terminal issues, I was sitting on a metal box on the side of a street, waiting for a friend to pick me up. I was thinking, hmm, I wonder what this is that I'm sitting on. I was really working at the time on remote terminal access issues. I was thinking, could this be a remote terminal? I realized, you know what, I probably would not recognize a remote terminal if

I was sitting on it.

That's part of the problem, in my mind, with what's been going on in the process. It's been too many of us policy thinkers dealing with very technical issues. I think we've muddied the waters a bit too much.

The idea for this panel now is to bring folks who are a bit more tech-savvy than most of us policy folks. It was said by a technologist, the former chief technologist at the FCC, Stan Newman, used to always say, "If you get rid of the lawyers, you get rid of the regulators and you bring all the engineers into a room, they could resolve this remote terminal issue in no time at all." That was about four years ago, I think. Since then, it's been regulators who have spent the past five years twiddling their thumbs, essentially, trying to come up with a solution. We haven't really let the techies take hold and try to work out a workable solution that would work for both the ILECs, the CLECs, the vendors and ultimately consumers.

So I thought we'd take a different path today, and instead of inviting one of the chief regulators at the FCC, we've invited one of the chief technologists at the FCC to moderate this panel. That's Jeff Goldthorp, who I will hand the podium over to in just a moment. But before I do, let me give you a little bit of background on who Jeff is. We've got his bio here, so bear with me as I read it pretty quickly.

Jeff is the chief of the Federal Communications Commission's Network Technology Division, where he leads a technical staff in advising the Commission on the public policy ramifications of emerging network technologies, including presumably access to next generation loop architectures. Jeff is also the designated federal officer for the FCC's Network Reliability and Interoperability Council, which actually several years

ago was tasked with coming up with an industry-wide standard for access to remote terminal architecture. Focus Group Three, if I'm not mistaken. They've been working for several years on it. In the interim, essentially, the FCC has come up with a policy cut somewhat before the Network Reliability and Interoperability Council had an opportunity to come up with what would have been maybe from a CLEC perspective a preferable technological interface standard.

Sorry for my editorial comment there. Before joining the FCC in November of 2001, Jeff was general manager of the Network Access Engineering Services practice at Telcordia Technologies. Jeff had profit and loss attainment responsibility for a $10 million consulting business that provided expert-based systems engineering services on emerging local access technologies, including DSL, hybrid fiber COACs, fiber to the home and fixed wireless.

Prior to this, Jeff was operations manager of Telcordia's $40 million emerging networks business unit and account executive to Ameritech's New Media Enterprise Venture. Early in his career, Jeff performed laboratory and computer simulations of advanced loop transmissions systems to characterize performance in the presence of impairments like cross-talk, bridge taps and gauge changes. Jeff holds a patent for a DSP-based near-end cross-talk simulator, which I don't know what that is, that is in use today in Telcordia's laboratories. Jeff was also founder and co-owner of a designer glass business. Jeff lives with his family in Virginia. He is active in scouting and other youth activities.

With that, I'm going to hand it over to Jeff to keep these folks under control. With one caveat, most of these guys really are techies. We've got Jon Canis on the panel,

who's definitely going to be editorializing on a lot of the policy issues, and I think it's Jeff's job to keep him to the technical issues.

One more thing, actually. I want to thank and apologize to Peter Pitsch, who is essentially going to be subject to the wrath of an angry CLEC mob at moments today. We had invited several Bell reps, including Verizon and SBC. We would really like to have known what their thoughts are on access to remote terminals in the next generation digital loop carrier environment. But frankly, they bowed out at the last minute. So at this point, it was really is just Peter Pitsch that we will be trying to figure out a lot of these issues with today.

Jeff Goldthorp: Thank you, and thank you to ALTS for inviting me here and inviting us here. I think we've got a good panel assembled for you this morning. Jonathan was referring to, I think, how you deal with the fact that you're an engineer and a regulator at the same time. But I think I learned early on, I was lucky, I had a boss that understood the subtleties of these things. He referred to this as "electro-political engineering." This is something he'd been doing for a while. Apparently, that's what I'm doing now, and I'm enjoying it.

This morning our panel is about access to fiber-fed loops. Obviously something that I personally have to be a little bit circumspect in my remarks about, given the status of the order that is pending. But I still think there's a lot that can be said, because we do have a news release that was issued that has things to say about that. We have not only that, but there were attachments to that and addendum to that news release that goes into somewhat more detail about what that release refers to as hybrid loops. I think that's what our topic is here today.

What might be most constructive is for us to try as best we can to stay within the four corners of that news release, understanding that there are some things about that news release that are still yet to be determined and somewhat vague. I think that still there are questions we can ask, technical questions that we can ask of ourselves, of how an industry or various players in the industry deal with a world where. For example, access to broadband services from a remote terminal may not be here in the near future. There's questions about access to DS-1 and DS-3 and how does that relate if they're sort of trunked back using ATM. Those are questions that remain unanswered. But I think there are still a lot of interesting issues that we can talk about amongst ourselves.

Let me start by introducing Jon Canis. Jon is a partner with the law firm of Kelley, Drye & Warren. He's a resident in the firm's D.C. office here. Jon's been practicing telecommunications law since 1984. Began his career as a staff attorney with the FCC and he's been practicing private practice since '87. Jon's practice focuses almost exclusively on the representation of competitive telecommunications carriers, equipment manufacturers, cellular telephone companies and ISPs. He represents these clients in regulatory matters before the FCC, DoJ and state regulatory commissions, in litigation before federal and state courts, in negotiating and arbitrating interconnection arrangements and commercial contracts, and providing strategic financial advice in start-up companies. Jon's admitted to the New Jersey and D.C. bars. I won't get into all the educational stuff, and I'll just welcome Jon and thank him for being here.

Each of the speakers will speak for about ten minutes. There will be time for questions and answers after they're done and at the end of the session.

Jon Canis: Thank you, Jeff. It is my sad duty, during this presentation, to talk

fairly critically about the FCC's process and the new rules that are going to be coming out of that. So let me preface this by saying that I worked at the FCC from '84 to '87. It was the best job I ever had. The FCC is the most important voice on policy and rules in telecom in the country, and the people at the FCC are among the most talented and hard-working professionals in this industry.

With that, I have to start talking about the broadband deregulation rules. Frankly, the process for the triennial review proceeding that was concluded on February 20, or that had an order that was presumably adopted on February 20, the process leading up to that and the process following that and continuing to this date is the worst procedural hash I have ever seen, and I've been doing this since 1984. I think this is the most badly handled regulatory process that any of us in this industry have ever seen. That kind of a process gives us great concern that the outcome, the rules that are going to come out of this, that are going to effect fundamental change in our industry, are going to be very, very difficult rules.

My personal sense is our concern is these rules, because of the process and because of the lack of open debate when these rules were adopted, may be inconsistent, incoherent, subject to litigation and appeal. All of which means that kind of confusion, that kind of uncertainty, will further harm our ability as CLECs to get access to the unbundled loops that are imperative to our business plans.

Actually, I just have to throw this out. The best line I've seen on this so far came from Telecom Reports yesterday. It said the FCC now, it's six weeks, it's been taking longer to rewrite this order after it was adopted on February 20 – it's taken three times as long as the ground war in Iraq. I think it kind of puts it in perspective for you.

The bottom line, the FCC Commissioners, when they adopted the broadband deregulation rules, did not know what they were adopting. The only rules that they say they adopted were written by the High-tech Broadband Coalition. It was a group of some of the biggest technology companies in the country. I love these guys, they're some of the savviest engineers in the world on this. But frankly, engineers are not the best rule-makers. These guys said, we'll take engineering concepts that we're familiar with and we'll just knock them out there and say that those are rules.

It doesn't work that way. Your rules have to be clear, they have to be understood by parties who are at each other's throats. The more unclear they are, the more litigation you're going to have; the more litigation you have, that means the rules never take effect. They get bottled up in litigation. This happened to us with EELS, happened to us with facilities available for unbundled loops. It's going to happen again with broadband deregulation.

In fact, look what the FCC is doing – it is adopting an entirely new regulatory paradigm never existed before. It is deregulating based on facilities. Now previously, used to have the states that regulated services that were intra-state, FCC regulating services that were inter-state. These services are carried over the same facilities. Now the FCC will deregulate based on the facility and based on the technology that is used in the loop. This is a revolutionary paradigm. It effectively will take regulatory authority away from state commissions.

How bad is it? All we have to go by now is the press release issued by the FCC, statements issued by the FCC Commissioners, questions answered in the press release that followed the February 20 meeting and the ex parte statements and proposed rules

submitted by the High-tech Bandwidth Coalition. Among these sources, the only public documents available to us to interpret what these broadband deregulation rules are going to be, you have monumental inconsistencies.

Here's an example. At the press conference, Bill Mayer, Common Carrier bureau chief, was asked by one of the press people, "What loops does this broadband deregulation apply to? What loops are going to be deregulated?" He said residential loops only, just residential loops. In some of the documented materials that were issued by the FCC, they talked in terms of these broadband deregulation rules applying to mass market loops.

What does that mean? We don't really know, because it wasn't defined in this context. In the past though, the FCC has used the term mass market loops to refer to residential and small business users of one, two or three lines. If you look at the High-tech Bandwidth Coalition ex parte statements and proposed rules, they say these apply to all. Doesn't make a difference between residential and business, it applies to all loops.

So you have this range of confusion in the public documents that are available to us now. That will determine whether it's available only to residential, residential and small business, or all loops regardless.

The key issue for the CLECs is, can we get access to T-1 loops and T-3 loops? These are what we use today, especially for carriers that are providing integrated T-1 services, voice and data over a single T-1. Everybody who has addressed this, including the Commissioners, the High-tech Bandwidth Coalition, have all said, our policy goal is to make sure that CLECs continue to gain access to the T-1 and T-3 loops that they get today.

The question is, in this regulatory hash and in this massive confusion, can we craft rules that will make sure that CLECs get what they are entitled to and what presumably every policymaker involved in this wants to ensure that they have access to?

Let's look at what's available today. Somewhere between 30 and a higher percentage of all loops in the country are provisioned over hybrid fiber COACs. It varies very much from box to box. Somebody just issued something saying that with Bell South, it may be up to 70 percent of their loops are provisioned over these hybrid loop structures. Alcatel's Lightspan is a remote terminal box used to provide both data and voice services over these hybrid loop structures.

Right now, the way they are deployed now, they have a footprint where they cover 45 million loops in North America. That includes Canada too, but the majority of these are in the United States. The question is, if this is the scope that's in place today that will be affected by these rules.

Can CLECs get T-1 and T-3 loops? Well, it depends. Different regulators and different commissioners in their public statements have used different terms in defining what is going to be deregulated, meaning what we don't have access to anymore. Some say the difference is TDM, time division multiplexing equipment, versus non-TDM. If that's the case, this could include loops provisioned over HDSL. Right now, I would estimate, in talking to some of my engineering buddies, that about 25-30 percent of all loops taken by CLECs today are provisioned over HDSL. HDSL is not, strictly speaking, a TDM type of service. Are these all deregulated? If they are, we're not going to continue to get access to the T-1 loops that we get today. Growing numbers are going to be provisioned over HDSL 2, which most folks are going to say is certainly not a TDM

base service. Some of the commissioners said really the distinction is between packet and non-packet. That would help a little bit, but how much does that clarify? Loops to a frame relay network are provisioned over T-1. You get a special access T-1. Are T-1 loops that go to a frame relay network, are they deregulated or not?

Some commissioners have talked about the policy goal here is to encourage investment in next generation loop equipment. Well, that's the Alcatel Lightspan. They're already 45 million loops that could be provisioned through that today. If you talk about that kind of demarcation, you've got a huge number of loops that could be immediately deregulated.

So the best thing that the FCC can do at this point is to identify, to answer these questions with great specificity. I have some of them listed in my handout. They are: Are PRIs currently affected by these rules? HDSL, T-1 loops provisioned over HDSL, HDSL-2, frame relay entrance loops. Are business loops affected by these regulations or are they not? And also, the FCC made it clear that direct fiber connections are going to be completely deregulated. It said this to promote construction of fiber to the home.

That makes sense if these rules only apply to residential circuits. But what if these rules apply to business circuits? In downtown urban areas, many buildings in the downtown commercial core are provisioned by pure fiber to the building. When we buy T-1 trunks off of them, they're provisioned off of sonic services. Are these going to be completely deregulated now? These are the types of questions that are open due to the confusing nature of the process that the FCC has adopted.

In closing, I'll just have to mirror the words of Roscoe, that he mentioned a little bit earlier. I think this is going to turn out badly. I think the only solution we're going to

have is to litigate this to death. I hope I'm wrong, but so far what we've seen from publicly available documents are not promising. Thank you.

Jeff Goldthorp: We have time for a few questions for Jon if anyone would like to ask at this time, or we could wait to the end. Our next speaker today is Chris McFarland. Chris is the chief technology officer for the – he joined the Allegiance telecom company in August 1998. Prior to that, he was an early employee in Vario, which was the world's largest web hosting company prior to his departure. He's active in the IEEE, the IATF and other various technical standards bodies. Chris, thanks for joining us, and I'll turn this over to you now.

Chris McFarland: Thanks, Jeff, and thanks to ALTS for having me out today to give you guys a brief presentation on what I believe are some of the impacts and policy implications associated with the broadband section of what was in the press release for the triennial review on February 20. What I'm going to do today is I'm kind of going to walk you through the presentation and give you my view of what I think has occurred and some of the technical issues we're going to have going forward as a group.

Just to give you an idea, and I think it's important that all of us understand some things that are associated with – kind of the history that was associated. The first thing is to dispel the myth that the ILECs needed broadband regulatory relief in order to widely deploy new technology, specifically hybrid fiber copper loop technology.

The second thing is that if you take a look at history, and especially over the past ten years, innovation and price compression has been driven by competition that's occurred in the marketplace. If you go back and take a look at what occurred in the early 1990s, Internet access was principally driven by smaller regional ISPs. In fact, they held

in excess of 55 percent of the market share up until 1997, where then you saw the large consolidation occurrence in that industry.

From the Telecom Act of 1996, you really saw broadband, in the forms of DSL technologies, take off in North America. There were companies like Covad and Rhythms and Northpoint that drove those technologies into place. Then in 1999, we saw the first proliferation of integrated services, where companies like Allegiance Telecom and See Beyond and others delivered voice and data and long distance over single loops in the forms of T-1s or variants of things that looked like T-1 technology.

But what you have seen throughout this whole time transition is you've seen the ILECs respond in kind to each one of these technologies and sell products and services and deliver things that look identical to it in nature. As recently has seen integrated access rolled out in a couple of the largest areas in the country in the past six months.

What I'm here to tell you today is the policy implications associated with the broadband section could possibly kill competition in the SME marketplace. Which personally from Allegiance Telecom's standpoint is something that I hold very near and dear to heart, because I believe that we pioneered some of this, and are forging ahead trying to bring broadband to the SME marketplace in the top 36 markets in the country today.

But lastly, and I think it's most important, especially if we take a look at North America, is we have to recognize that the markets, specifically the markets between the residential and business marketplace, are separate entities. And they should be viewed as separate entities when we're taking a look at how policies regulate what's going to take place in the future.

Moving forward, Slide 3, the myth that telcos wouldn't invest in broadband unless unbundling obligations are lifted. I can tell you as a technical leader for the past ten years in organizations, that when you have an embedded network infrastructure, you're basically looking at some very generic principles for how you determine investment. You're looking at savings associated with network administration or capital, and furthermore you're looking at how can you derive new incremental revenues from enhanced services that can be layered onto that.

The reality is, if you take a look at what this technology means, the telcos have every reason in the world to invest without having added incentives. If you go to the next slide, right after SBC announced Project Pronto, there was a press release out that basically said that efficiencies and cost savings associated with that would pay for itself many times over and very quickly. They had estimated by 2004 they'd have $1.5 billion in savings from deploying this technology, just in terms of maintenance actions associated with such.

Just to drill a little bit into the details associated with this, if you took an illustration of 10,000 line service arrangement out of a central office, you can see historically up until about the late 1980s, you basically had feeder loops that were coming out of the central office. They may have been as large as 2000 twisted pairs, going out to what would be a distribution area. If you take a look at the copper service arrangement, where there was what they call a serving area interface or cross-connect box for a neighborhood or for a set of small

business district, which basically had all the copper providing loops out to that area. But what you have to realize is that there was 10,000 – if you took the arrangement of 10,000 loops, there would be 2000 pairs of copper in these copper arrangements, and you'd have up to 2000 other copper cables at a cross-connection box there.

Moving forward, when they started deploying next generation digital loop carrier systems, you're able to take out the copper feeder loops that are associated with such and basically replace a couple thousand pairs of copper with as little as 2 pairs of fiber or four strands of fiber associated with such. If you think about it, the maintenance actions associated with maintaining the copper due to all of the other things that can be possibly happen, from weather to rodents to backhoe fade, to any of the other things, it's a significant cost savings associated with it.

So where the real costs lies is the fact that they have to, out there where the serving area interface is, is they have to construct space for remote terminal and deploy those electronics. There's not a whole lot of costs associated with pulling the fiber, because today all the ILECs already have right of ways, existing duct – it's easy to blow fiber through that area. The real cost is in the electronics associated with that remote terminal. I can tell you that the line cards are the most expensive part of it, which is the thing that really drives the expense in deploying this technology going forward.

So from what I can tell in looking at the specifications that we have seen from Alcatel, and if you talk about the fact that we have this TDM to packet or these other things that are kind of unclear today, going and taking a deep look at the technology, the only difference between deploying POTS service or DS-1 service or ADSL or HDSL-2

or some kind of a next generation packet service is basically putting a different type of line card into that remote terminal. It's a shared common facility that's associated inside of that remote terminal. It's got a common back plane, it may have a couple of different back planes, but it's a common shelf unit that's associated with it.

I think it's important that we're talking about regulatory policy that deems what us as CLECs have access to, you're really talking about simple changes such as just the line card that's going into the remote terminal itself. There is some other technical changes that occur out of the central office, but those are things that we've all been dealing with since they implemented the first remote terminal in the network.

I'm not going to spend any time on the fiber to the curb or the passive [inaudible] networking. I can say that it shows a lot of promise in terms of the proliferation. What does this mean for the consumer marketplace, both in the residential and business markets is that the further you can drive fiber into the loop, the higher bandwidth you can drive over having shorter copper distances on the long end.

I can tell you that things that I see out of groups like the Ethernet and the first model alliance show very promising upgrades to bandwidth in terms of the amount of bandwidth we're going to be able to drive over simple copper loops. Today we all know that T-1 is pretty much the standard that's been used for the past twenty years. DSL in the forms of HDSL and [inaudible] has really been able to proliferate over the past five or six years. But the things that I'm seeing out of the standards bodies over the next five to ten years are very interesting, with things like VDSL and [inaudible] .3HH, which is an ethernet component of how it might be deployed.

So what are some of the implications associated with the policy from the press

release? One, I believe that we will have preservation of the TDM type of things, things that will allow us to have DS-0, DS-1 and DS-3 for TDM local loops. I'd be very surprised if we don't have that. But is there opportunity for ILEC gaming? I don't know we'll know until we see what the final order looks like. But I am concerned that there's many ways that that could actually occur.

But more importantly, what this does do is it spins the equivalent of Moore's Law for CLEC access to new local loop technology. What I'm talking about there is that if you take a look at how the industry is changing, both in the switching and transmissions systems, we are moving to a packet infrastructure. IP has been chosen as the convergence layer for all new services and applications. You can just take a look at how the Internet grew over the 1990s. You can take a look at emerging carriers and both the incumbents looking very closely at using IP for driving voice over IP. Higher speed copper transmission technology is transforming and changing. I can tell you that it is all going to be driven inside of a packet infrastructure.

So why does this concern me the most, is that if we're constrained to this arcane technology, it means the death of us for this piece of the marketplace. I can't tell you when, but I'm going to guess that we're talking 2-5 years out, or as rapidly as the ILECs are able to displace current technology or drive more fiber into the loop with packet type technology.

Some principles for moving forward, from my viewpoint, is that contrary to popular belief, the ILECs do have incentives to deploy broadband. They have since the late '90s. There's no changing that issue. It's straightforward. And that the current incentives that are proposed are coming at the expense of the small and medium

enterprise customer choice and the eventual elimination of competition in that area.

Two, recognize that ILECs control the local loop and is the only way to access this SME, the small and medium enterprises today. I think it's important to note, though, if you take a look at the rest of the network and invested capital that's out there, we've overbuilt those companies. Every piece of the network that we can, we deployed our own switches, we deployed our operations, we employ tens of thousands of people, we've built network operations centers, we've deployed long-haul fiber networks, we've deployed metropolitan fiber networks.

We've invested everywhere that we can. The only part of the network that we don't have for that part of the segment is the access to the local loop. But if you take that away from us, there's nothing that we can do there with it.

I can tell you historically looking at how can we forge ahead or what is a model for how we can move, I thought the FCC had a pretty good provision in place with the SBC Pronto waiver from the SBC Ameritech merger that was associated with it. It wasn't perfect, but it was ideal and it laid the framework for how we could move forward with advanced broadband technologies.

With that, I'm going to turn it back over to Mr. Goldthorp. Thank you.

Jeff Goldthorp: Thank you, Chris. Now we'll hear from – I'll say a different point of view, but I haven't talked in detail with Peter about what he'll be saying. Peter did a stint at the FCC from '81 to '89, where he was chief of the Office of Plans and Policy and chief of staff for two years. He was then in private practice from '89 until 1998. Currently he's working for Intel as communications policy director. He's been there for five years. Recently he's been very involved with the High-tech Broadband Coalition.

With that, I'll turn it over to Peter.

Peter Pitsch: It is a pleasure to be here. At the beginning of this, as I was thinking about coming to the group, I couldn't help but think of an old Woody Allen line about 90 percent of life is showing up. If that were ever true, it's true this morning. It's good to be here and have a chance to discuss things. I'm going to go through three points quickly and I suspect we'll have a lively discussion of things. First, I want to explain what the High-Tech Broadband Coalition is and why we care about the broadband decision in the triennial review. Second, I'd like to tell you what we think the biggest supply side problem is in the broadband market. Thirdly, talk about our policy prescription, which apparently lies behind key parts of the FCC's broadband decision in its triennial review decision.

First, who are we? I, of course, with Intel, represent the largest chip maker in the world. But we've been active in this High-tech Broadband Coalition. Its six primary members are six trade associations which represent nearly 15,000 companies. Every niche of the broadband value chain, from software and telecom manufacture to computer and ISP providers. We don't include any carriers. Didn't want them to be part of our coalition.

I start off by saying that because I want to be upfront about our motivations. We have no axe to grind. In Intel's case, we put early money into Covad and Northpoint. We want broadband to be widespread, high quality and affordable. If you think about it for just only a moment, the only way that Intel benefits by any of the public policies here is if at the end of the day high quality broadband is widespread and affordable and consumers see fit to buy it. Because it's only then that they're going to be more inclined to buy a

computer with a Pentium 4, Pentium 5 –

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...peak period traffic in Atlanta by 1 percent, was $100 million a year. If you look at depletion, capital costs, so on. That's just one tiniest tip of an iceberg about the kinds of benefits and drivers that we can see from broadband.

Just to be a little bit clearer about Intel's interests here, Moore's Law is ultimately not a law of technology. It's a law of business. People need to have a reason to buy faster and faster microprocessors.

Broadband is going to be one of the key drivers there. But I want to be optimistic about that, because I strongly believe that broadband is going to be another classic bandwagon market with strong complementarities between the hardware and software side, just as we saw in PCs or color television or VCRs or CDs, DVDs and so on. Once we reach that critical mass, then software – I use that term broadly – software vendors are going to have a very strong incentive to exploit the new capability. That's going to increase the benefits of having the service to start with, which is going to further drive the hardware or infrastructure development.

So what's the biggest problem on the supply side? There is no silver bullet. There are demand side issues and other supply side issues. But we look at the relevant market as broadband. I suspect that many of our disagreements here will hinge on this fundamental point. What is the relevant market? For the mass market, we believe the last mile mass market is broadband, which includes cable service.

Cable, according to McKinsey and J.P. Morgan, is the low-cost provider here. DSL is fundamentally handicapped in our country at this point because until fiber is

deployed further into the neighborhoods, the capability of DSL is fundamentally limited. It's limited looked at about a year or so ago, figures from Verizon, basically they had equipped about 40 percent of their central offices at that point. Those 40 percent of the central offices served 80 percent of their customers or lines. But only 60 percent – I'm sorry, about 48 percent of the total lines were able to be served because people were too far from the central office. I don't have to explain to this audience what that means. It means slow service or no service.

How do we solve that problem? If you're focusing on the broadband market, again, cable having spent $70 billion in improving their infrastructure, having a 3-2 lead in availability, a 2-1 lead in penetration – how do we, from a broad public standpoint, how do we solve that problem? What we need is fiber to be deployed into the neighborhoods. First into the neighborhoods and then ever closer to the house. That's going to cost billions of dollars. If you just extrapolate from SBC's Project Pronto, $20-30 billion just to get into the neighborhood. They were going to deploy 11,000 miles of fiber, in the case of Project Pronto. It was going to be done over three years, cost $6 billion. Rehabilitate or deploy new, about 25,000 remote terminals. It's real money.

That investment is extremely risky, notwithstanding what Intel thinks about the prospects for broadband. If you go to Wall Street, they're very skeptical about making those kinds of investments today. Notwithstanding what Chris and I may think, it's very risky investment. It's discretionary and I already pointed out, it's very expensive.

So how do we, from a public policy standpoint, increase the likelihood that the AVIS competitor in the market is going to make that risky, discretionary, expensive investment? The reason or what we think needs to be done, which gets me to my third

point, is we basically need to establish fundamental policies that encourage investment based on risk reward. If the companies who deploy that risky new investment can't get the return on it, on the margin, they're going to make less of that investment. This is not rocket science. It's, we think, fundamental business. We think perhaps in bygone years, and I'm not going to second guess anybody, it might have been possible to do much more than we could have. As I indicated, we were early supporters of the data CLECs.

But now we think we're beyond three corner pool shots. The FCC needs to get the fundamental investment, risk reward balance right, or we're not going to get facilities based competition in the broadband market.

I'll end by explaining a little bit about what the High-tech Broadband Coalition proposed. We actually, as Jonathan pointed out, gave draft rule language. We took CFR language, or the Code of Federal Regulations, and proposed specific rule language. We focused on the distinction between packetized transmission capacity and non-packetized transmission capacity. We argue that the competitors should be able to get access to the existing facilities, those facilities and services that they can get today.

So for example, when we read the ex parte from Allegiance and realized that our initial cut at this had excluded access to DS-1, we said we've got to go back to the drawing board. And we have to make it clearer that the CLECs should be able to get access to time division multiplex fiber. If an ILEC puts in new TDM fiber, that too would remain available under unbundling rules. If the CLEC wanted to add their own electronics to that TDM fiber and upgrade it, however they saw fit, they would be free to do that. Indeed, all the existing copper would remain available. This is a point that is not sufficiently understood, I think. But we said, look, until the FCC approves the retirement

of copper, the ILEC would have to maintain that.

So we intended to give strong incentives to the ILECs to reach commercially reasonable deals for access to the new, even packetized transmission capacity, with data CLECs, so that they would have a strong case to go in and say, we can retire the copper. We wanted this to be outside of regulation, outside of the purview of lawyers. We did very much want this to be driven by engineering and business considerations.

But fundamentally, we tried to draw a line between legacy and new. While clearly this is a complicated world, and when we get into the granular decisions there will be some tough cuts, and I don't deny that and frankly I don't make any apologies for it.

But at the end of the day, what we need is a policy that encourages this new investment in the larger broadband market. Recognizing the equities that are attached to the legacy network, where there is a true bottleneck, and drawing a distinction between that and the new investment, where we did not feel there was any fundamental public interest argument to distinguish between that and the hybrid fiber COACs that the cable companies were deploying.

I imagine there will be questions. Thanks.

Jeff Goldthorp: Thanks, Peter. Our next speaker today is Francisco Maella. Francisco is the senior VP of network and technology with El Paso Global Networks. Managed network architecture and design group for a Silicon Valley start-up, Valiant Network. He was chief technology of data architecture with Williams Communications Group. He's held engineering positions with MCI WorldCom and designing and deploying voice data and transport technologies.

Francisco Maella: First I'd like to thank ALTS for allowing me to be here. I

guess the fundamental question that I would like to just try to answer at the end of my five to ten minutes is, how will new regulations in emerging loop technologies affect the access to TDM loops, such as T-1 and T-3, which is really the backbone loop type of technology that a lot of our CLECs are using to offer services such as integrated T-1 access, converge voice and data service and that sort of thing.

The reality is, from reading the triennial press release, is a little unclear, or have some concerns specific in the way the hybrid loop is being defined, with buzzwords being thrown in such as packet technology, packet service, unbundling TDM services from packet technology and things like that. So until the final order comes out, we don't really know whether we're going to be able to get these T-1s or DS-3 TDM loops or what new type of architectures that are being deployed in the loop today. But if defined correctly, regardless of the architecture, regardless of the technology that is being used to deliver the T-1 TDM loops or DS-3 TDM loops, we should still be able to get access to that loop to the customer premises.

So let's go through and say what is a hybrid fiber-fed loop? Mr. McFarland did an excellent job, has an excellent picture in his presentation. But basically what it is, it's a loop architecture with copper and fiber between the central office and the customer premise. What you have in the middle is a remote terminal. This remote terminal will house some electronics, generally will be a next generation digital loop carrier that will basically place a transition or transition the copper technology into a fiber technology. So on the loop, on the copper loop, you will generally have the low-frequency side of the loop will carry the voice and the high-frequency side of the loop will carry your data traffic. At the remote terminal or the next generation DLC, the data traffic is routed over

a separate fiber facility than the voice traffic, which is carried over another fiber facility using maybe something like TR303 standard.

So basically this architecture historically being used to deliver DSL services out to residential users or even small businesses. This type of architecture allows for deeper penetration of broadband services such as DSL into the premise because of inherent distance limitations that is basically inherent to DSL technology.

So today, how are we getting DS-1 and DS-3 TDM loops? If you look at DS-1 loops from our experience in ordering unit loops in the Texas markets, from Southwestern Bell, a DS-1 loop may be delivered over four wire repeater type architecture from the central office out to the customer premise. Or it may be delivered over HDSL or HDSL-2 technology from the central office to the customer prem. Or sometimes we'll see it over a sonic based architecture, where there's enough capacity in a certain location where you may have an OC-3, OC-12 sonic terminal or sonic multiplexer and then you match T-1s up onto a fiber facility back to the central office. We're seeing DS-3 loops being delivered over a sonic based architecture for the most part.

So here comes the triennial review press release. I would almost characterize this as good news and bad news, or potentially bad news. The good news is that the FCC says the CLECs will continue to get access to unbundled network elements for TDM, T-1 or DS-3 over existing facilities. But then there's something else in the triennial review that talks about a hybrid loop. It talks about to the extent that the ILECs have new deployments of hybrid loops in their loop architecture or their loop network, with some undetermined form of packet switching product or service, then they do not have to unbundle those loops.

What does that really mean? Does that really mean that it is a packet unit that will not be unbundled? Or is it a TDM service that is delivered over a packet-based technology that will not be unbundled? To me, that needs to be clarified before we know what the impact is of the regulatory policy and our ability to get TDM, T-1 loops to customer premise.

So what really, what is our hope here? Our hope is that the FCC does not allow the ILECs to perform any type of gaming or look and say, look, I'm going to deploy a packet-based technology in the loop in order to prevent CLECs from getting T-1 TDM loops, because it's being provisioned over a packet-based infrastructure.

So what could be an example of that type of architecture? The ILECs have next generation DLCs to put at the remote terminal. What happens if they put in a card that's basically an HDSL or HDSL-2 card which delivers a T-1 out to a customer premise and then that HDSL or HDSL-2? The T-1 is then maybe circuit emulated or used in some type of ATM circuit emulation technology from the remote terminal back to the central office and then delivered as a T-1 again. Would that be unbundled? Unless it's clarified they're willing to separate the packet infrastructure from the actual service that's being delivered to the customer.

Also, if you look at a BPON architecture, you can deploy BPON, where you actually use an ATM circuit emulation technology to get from the customer premise to the central office. But at the end of the day, the customer's only seen a T-1. They're not seeing any ATM cells. It's just an adaptation technology or it's just a technology used to transport the T-1 service across the loop. It is not a packet – it is a not a packet service.

So I guess what I'd really like to get clarified is that there is a difference between

a packet service and a packet technology. A packet service – and you keep it very simple, very simplistic – is a service in which the customer and the ILEC have to coordinate how those packets are being delivered. For example, an ATM service. If I sell an ATM service, I have to coordinate with the customer what type of addressing I'm going to have on my ATM sales. If I sell a frame relay service, I have to coordinate with the customer what the addressing information on the frame relay package. IP service, ethernet services, those types of services you have to coordinate the exchange of information and the addressing between the service provider or the ILEC and the customer.

In a packet-based technology, I could deliver a T-1, a TDM T-1 to a customer. But I could use a circuit emulation technology in order to converge my network and I can deliver that T-1 – I can modulate that T-1 over an ATM, over my core network, to drive efficiencies into the network or for whatever reason. But at the end, the customer does not see the ATM sales. The customer does not know that there's an actual underlying packet infrastructure that this T-1 is being delivered on.

I think that is the key, is what is actually being delivered at the D-mark. Is it a TDM service or is it a packet service? If it's a TDM service, then it should be unbundled and it should remain regardless of what technology is being used, what underlying technology is being used to deliver the service.

So based on this definition, very simplistic definition of TDM technology, TDM service, versus packet service, we hope to continue to get TDM T-1s or TDM DS-3s out to customers regardless of the underlying technology that is used to deliver that service. So it's really, separate what's being delivered to the customer from the underlying

technology that the ILEC may utilize to deliver that service. Thank you.

Jeff Goldthorp: Thanks, Francisco. Next speaker, and our last speaker this morning before we'll get into some dialogue, is Mike Gallagher. Mike is the CEO of FDN Communications. FDN is a facilities-based ISP – or ICP rather, focused on SME customers in Florida and Georgia, founded in 1998. Customer access strategies include uni-loop and T-1. FDN, Mike wants you to know, is de-leveraged and free cash flow positive. Prior to FDN, Mike founded Texas Focused TLEC Metro Access Networks, which was sold to Brooks Fiber Properties in 1997.

Michael Gallagher: Thank you. I can speak just directly to my experience in acquiring fiber-fed loops over the last four years. We have never actually acquired a fiber to the curb loop, so I want make sure everybody understands that.

But operating in Florida, FDN has to deal with a tremendous amount of fiber-fed loops. The architecture of the ILEC networks are such that if you look at the Eastern seaboard, for example, you'll find that in the northeast the population growth happened in the '40s, '50s, '60s and the architecture was to build directly from the CO copper directly to the customer.

As you go down south into the Sun Belt, stretching all the way to Texas, when a developer acquired some property outside of town in the go times of the '70s and '80s, the ILECs dropped in remote terminals nearby the development and fed that back to the nearby central office, with some sort of TDM feed and then eventually fiber. So that's why we're dealing with what we're dealing. It's not necessarily bad, it just is what it is.

In Florida, we're able to acquire voice grade loops over that plan easily. We do it every day. We estimate that about 70 percent of the loops that we serve are fiber-fed.

I'm optimistic. I think that the states are going to enforce the Telecom – the premise of the act that says the loop goes from the NID at the customer prem all the way to the frame, and if there's some fiber in there then that's just an ILEC decision on transport. So we believe we're going to be good with that at the state level. I'm very positive about that.

Where a problem emerges is when the ILEC drops in a D-SLAM at a remote, and you have a customer who typically you could get three or four voice grade uni-loops to – now you have a problem. Because Bell is on the high frequency of one of those loops and will not allow the customer to have any other dial tone other than their own underneath that DSL. So that's where our beef is, if you will. We just recently won a case in Florida whereby that no longer is the rule. So now we will be able to get – the customer will be able to choose their dial tone provider and their DSL provider.

I would argue with Peter – the ILEC putting a D-SLAM on a remote is about as risky as beer sales at a White Sox game. If you think about it, it's a remote serving SME market. You've got no cable TV plant there. Wireless isn't working. How else is a customer going to get broadband? You've got CLECs throwing T-1s at them and we do that. But the small market customer is going to buy broadband off of that D-SLAM. There will be a fill rate that will provide an IRR that I would die for. So I think that that is somewhat of a myth. I'm sure we'll have some debate about that.

What we believe is really important and sort of a reason why we're actually having this discussion is that a DSL uni, a D-SLAM uni, where the D-SLAM that's in this remote and transport back to an ATM cloud, should be on the table here. In fact, it was on the table. It's our understanding that at the last minute, in an attempt to trade horses

on the UNI-P debate, that was taken off the table so that UNI-P could stay alive. So we view that as unfortunate and it is why we're here.

Impairment is what creates a uni. We're impaired in trying to co-locate remote terminals – D-SLAMS are remote terminals. In Florida, there's 12,000 terminals. We estimate it would cost us about $19,000-$20,000 per remote plus power plus all sorts of other fees. That is why unis are created, when you have an impairment. To our knowledge, there has been zero successful co-locations of CLEC equipment in remote terminals. If that's not impaired, I really don't know what is.

So we're planning at the state level to, as the FCC decision looks like a lot of the work is going to be punted to the states. And we think there's going to be some horse trading there where maybe some of these broadband unis and some of this broadband transport will be on the table, tied into the UNI-P time horizon. So that's our strategy. We feel pretty confident that we're going to work these issues at the state level once the FCC wording of the actual rule-making comes out. Thank you.

Jeff Goldthorp: Thanks, Mike. Thank you to the rest of our panelists for joining us this morning. We do have a few minutes – I'll say five or ten minutes. I have a few questions. Let me just open and then I'll turn it over to you folks. My question is based on something I heard Francisco say, and that is, if I heard you right, your suggestion was essentially to decouple the idea of the service from the underlying transport technology. Even had a fairly detailed suggestion about how to deal with the issue of circuit emulation, ATM transport and how would you determine whether or not – so I thought that was a fairly detailed, technical specific suggestion that was offered here. I wanted to throw that out and see what the rest of your reaction – because that seemed to be a major

issue that almost everybody brought up today. What do people think of that?

Chris McFarland[?] [off-mike]: My reaction to that would be, as far as I'm concerned, that should be given associated with how the final [inaudible] looks like. What you described as the technical components of how the services would be delivered. But that should be given. Based on what we know as how we're proceeding, that's the reason why the [inaudible] is more focused on the long-term issues and not the near-term issues associated with DS-1s or DS-0s or DS-3s.

Peter Pitsch: Let me answer the question by discussing a hypothetical. I think this is a tough issue and one we logically concentrate on. Take the situation where there's a digital loop carrier serving a neighborhood today, provides voice, no DSL. The ILEC can't provide it, obviously a CLEC can't provide it. There's a fiber going to a remote terminal in the neighborhood.

Now let's say they upgrade that, but they might have been, just to be clear, they might have been providing a TDM DS-1 on that existing fiber. The upgrade and port in place, and this is specifically the case in the case of one carrier, SBC, upgrade that to be able to provide DSL. So there will be a new fiber transmission capability. It will be packetized. They'll upgrade electronics in the remote terminal.

Now, what happens? From our standpoint, the TDM on the first fiber remains available, should remain available. The access to the new capability, the packetized transmission capability that they put in place along with the upgraded electronics, should not be, [inaudible] compelled under unbundling regulation.

Now, consider another situation, a situation where they put in a completely new overlay. In other words, all the customers are served off this central office from copper

but it's that 60 X 80 giving you 48 percent of the customers again situation. So they put fiber out into the neighborhood. What happens in that situation? Under our proposal, under the High-tech Broadband Coalition proposal, all the existing copper remains available. Access to that new overlay fiber and remote terminal is not available. Those two illustrations were the guts of our proposal regarding the hybrid fiber-copper situation.

Jon Canis: Just one quick observation. Statements by the chairman – and Peter, I agree with a huge amount of what you're saying. In terms of if copper is available when loops are upgraded to fiber, I think that's a fine solution. The chairman made it pretty clear though that the new rules to be adopted by the FCC will not impose any regulations on ARBOCs or other ILECs to maintain copper, and that they are fully free to eliminate it. As far as we know, what –

Peter Pitsch: Can I just interject? I think there was a big brouhaha over the role of the states there. I guess I would draw a distinction, if I could, Jonathan, between what we propose, which is SBC can't retire that copper without coming back to the FCC and getting regulatory approval. Just to address one huge question here: I would be grievously disappointed if the states, if the FCC's decision here, does not effectively preempt the broadband space. So I just don't think the states are going to be able to go in and say we're going to impose a broadband uni. With that, I'm sorry, that clarification.

Jon Canis: We'll see what the rules say whenever they come out. I'm not sanguine about the continued availability of copper. But going to the other issue, and I'd love some additional feedback from the other panelists on this, my big concern is this: everybody's putting in remote terminal equipment. Every manufacturer, whether it's Alcatel or Lucent or Canelex, is trying to create a god box, something that has slots for as

many different line cards, so you don't have to reengineer your network. You can buy one box that can run your sonic, your DSL, your ATM, whatever. That is what's being deployed now, it's what the Lightspan is.

My question is this. In a situation where you have to anticipate gaming by the ARBOCs, can an ARBOC put a new generation Lightspan in, say we're taking out all the four-wire TDM T-1 line cards, we're deciding to do everything over HDSL-2 and maybe we're going to bring everything back to the central office over sonic. You know what? We'd like to give you TDM stuff, but we don't have any facilities available anymore.

Panelist: That would be bad.

[laughter]

Francisco Maella: I agree. I think the key here is what's being delivered at the D-Mark. If what's being delivered at the D-Mark is a T-1 TDM, then it's irrelevant of whether it's a god box, whether it's sonic, whether it's HDSL, those are just modulation technology or modulation techniques to carry that T-1. You can always have, I like to say, have little green men carrying bits across the loop. It doesn't matter, it really doesn't. It's what's being delivered at the D-Mark. Trash in, trash out.

Panelist: I think, Jonathan, as a lawyer, you're thinking about specific wording and what it can mean. I think the practicality of it is that it is going to be tough for the ILECs to put that argument past, I think, the PSCs, in that it's technology agnostic from the D-Mark back to the point the CLEC picks up the capacity.

Panelist: Actually, I thought this was the issue that Francisco, your ideas that you were talking about at the podium were intended to address, in a way. Is that right?

Francisco Maella: That's right. It's really decoupling the underlying technology

so it gives the ILECs the flexibility to say I'm going to deploy ATM circuit emulation today because that is the most efficient way for me to deploy network. Or I'm going to deploy some new technology three years from now. But at the end, it's what's being delivered at the D-Mark and defining that interface with the D-Mark is what really matters. So if we're going to unbundle a T-1 TDM, make that irrelevant of the technology that's being utilized to carry that TDM service.

Panelist: That's effectively happening today, because when you order a voice grade uni-loop at 3000 hertz analog signal, it's getting muxed up over fiber probably in a lot of cases. Then it's being handed back off in analog form.

Francisco Maella: But I feel very uncomfortable when I hear TDM fiber and packet fiber, because the reality is there's no such thing as TDM fiber and packet fiber. It's all determined by the electronics and [inaudible] that you put on the end of that fiber.

Peter Pitsch: Right, but could I ask this question. Say that you get the TDM fiber in my illustration, but you were free to put your own electronics on both ends. How would you feel about that?

Francisco Maella: We actually do that a lot. I feel very good about it. But the reality is, in a lot of the SMEs, the small to medium enterprises don't have fiber into those buildings.

Peter Pitsch: So our situation wouldn't be addressing or affecting that alternative.

Panelist: A lot of times too, you're making it sound like the ILEC – the ILEC's buying a D-SLAM shelf that's got an OC-3 fiber feed right in it. So they're just pulling a couple fiber pairs that are already terminated in that RT and lighting them. It's their choice really, and it's the better technology choice.

Peter Pitsch: I want to go back to this policy issue, which I think goes to the incentive issue. I believe it was you, Chris, who made the point that in a cross space, this narrow forward-looking cross space, is that it makes sense to go in these directions. But I don't think that that approach, perspective, captures the business analysis, if I'm a business person deciding whether or not to make that investment. Because I have to look at embedded revenues. I have to look at the overall effect of my future business in making these decisions.

Take the case of fiber to the home. If you look at fiber to the home deployment in this country, half of it's CLEC, 25 percent of it is municipal, and the ILECs are a tiny part of it. I would have to be absolutely crazy and probably open myself up to derivative lawsuits as an ILEC executive, to put fiber to the home. Because who the hell knows what I would be compelled to do down the road? Enable five to ten competitors at some kind of incremental cost to all compete against me, and I take all this risk today and five years down the road I'm competing against that? That's the extreme case.

Panelist: Peter, I'd have to disagree and agree with you. I disagree on the front that next generation digital loop carrier systems make all the sense in the world and very easily on economic and business spaces make sense. Fiber to the home, based on current revenue streams? There's no way in the world you can make that make sense. So I agree with you wholeheartedly there, and that's the reason why ILECs haven't done it to date.

Peter Pitsch: Right, but I guess my point is, it's degree. Let me give you a counterexample. If IP telephony over cable were cost effective and here today, then the ILECs would have no choice. They would have to do it, because let's face it, while we've talked a lot about the small business market, what we're really talking about here is the

residential market, from a larger what is driving the High-tech Broadband Coalition.

Once the voice revenues, embedded voice revenues of the incumbent telephone company are fully at risk, they will have no choice. If that is not the situation, in fact it's probably gotten worse in the last two years. So I think that has a huge impact. They do not – the ILECs today have very strong incentives to retire debt, not invest in fiber.

Panelist: It seems at the same time, Peter, that voice over cable TV becomes relevant, then voice over DSL will be the ILEC counter to that. By definition, we'll be right back to a duopoly if the customers are served by a remote that only the ILEC has a D-SLAM in, so there will be two paths, the ILEC DSL and the cable TV, and that's it. So I don't necessarily know that that's good policy either.

Panelist: Before we go down too much into policy, I have obsessed about getting rules out of this commission in a couple of weeks that are going to be implemented and are going to give us access to these kinds of loops. So let me ask you guys. If we want to make this perfectly clear, if it's true that the goal of everybody is to give us access to T-1 and T-3 TDM functionality loops that we currently have today, how does the FCC define that? Do we identify specific technical publications or specific technical specifications that discuss the interface and say, back whatever kind of technology you're using in that remote terminal, this is what you have to hand off if a CLEC requests it. Can we get that specific?

Panelist: Yeah, I think you focus on the interface. You're going to end up drowning in technology if you focus on the transmission path.

Panelist: Absolutely.

Panelist: Lastly the FCC needs to address potential ILEC gaming opportunities.

Jeff Goldthorp: I think what I heard, just to summarize, is this is all getting back to what I heard you say earlier, Francisco, is that that is something that pretty much everybody can agree on to a point, at least on the panel here.

I'll ask one more question.

Panelist [off-mike]: Just for the record, I went down to [inaudible] – I'm the [inaudible] lawyer here [inaudible]. [inaudible] consult with some of my engineers to be 100 percent sure that I tried [inaudible].

Panelist: Come on now, I don't say I have to consult with my attorneys.

Panelist: [inaudible] [off-mike]

Jeff Goldthorp: One question I have, and I think we do have a few more minutes, is getting to the issue Peter brought up about cost and the cost to deploy next generation DLC technology. This term, NGDLC, has been around for quite some time. When I first ran across it, it didn't mean what it means now. It meant GR303 remote terminals. Actually, fiber-fed remote terminals, you all know they've been around for some time too. They weren't always fiber-fed for broadband services. It was fiber-fed for the reasons that we've talked about here, which is that's the cheapest way to deliver the services that were being delivered.

So it seems to me there's two business cases, there's two arguments that need to be built. If you're somebody who's considering an investment like that, you look at first of all, is there a cost advantage to doing it, just based on services that you're offering today. I'll say legacy services. There is incremental functionality. A back plane of a 3R57 remote terminal is a lot different than the back plane of sort of the remote terminals that are hitting the market today.

I would venture to say it's a lot more expensive. So it seems a little bit that it's simplifying the problem to say that well, it doesn't really cost that much to put the fiber in. And it's really the cost is in the electronics and so forth, because I think it actually does cost quite a bit of money to actually build these things. So I'll just throw that out based on my experience.

Panelist: Yeah, Jeff, I can send you the economic analysis, but we've got a model that displays what we believe the cost to be, and actually I think we actually had some interaction with at least one of the Bell companies. The majority of the cost does reside in the actual line cards that go into the RT, given the fact they already have the real estate, they already have the conduit, blown fiber is pretty cheap. Digging up the streets is the most expensive part of fiber construction. Then depending on where you're at, you get in on the laterals, which could be the last 100 feet or last 1000 feet.

On the flip side of it though, I understand the things that Peter's talking about and prescribing to. That's the reason why I talked a little bit earlier about I think we really ought to look at markets separately from a policy standpoint. At a residential marketplace, there is intermodal competition between the cable companies and the incumbent LECs. But in the business marketplace, that isn't the case. If you take a deep look from an engineering standpoint at the cable companies' HFC networks, they won't be able to compete in the business marketplace with their current technology. They'll have to go spend another $100 billion if they want to go compete in that area. I don't think we're going to see that in the next decade.

Peter Pitsch: By the way, that was one of the reasons why when we read the ex partes filed by companies represented in this room, we made it clear that we did not

intend to preclude the availability of the CLECs to gain access to the current DS-1s, because we thought that if you're going to have competition, that was compelling need.

Panelist: I was just going to say, everybody's going to buy your new Y-5 chips and your PCs and it won't matter anyway.

Peter Pitsch: Actually, not. I think it's a – I believe that Y-5 is both a complement and a substitute. I know that I value DSL and cable modem – well, I'm now on cable modem – more because I have my Y-5 chip connect two computers and so on. But more and more hopefully Y-5 will be an alternative. Certainly standards work is being done.

Jeff Goldthorp: I think we've actually gone over our time. Jonathan, do we have time for questions from the floor?

Jonathan Askin: If there are questions, yeah, because this is the dialogue we wanted to have and we don't want to miss this opportunity.

Jeff Goldthorp: Okay. Sir?

Question [off-mike]: My question is to Peter. I've always understood the coalition's policy arguments. I've been less clear about their arguments regarding the law specifically on pairing [inaudible] the hybrid loop. Are you saying the intermodal competition is enough to [inaudible] something to look at, or that the CLECs aren't impaired by [inaudible] transmission from the unbundling obligation?

Peter Pitsch: Could you say who you are again?

Question: Yeah, I'm Jim [inaudible] from Fitz Blevin. We were opposed to the [inaudible].

Peter Pitsch: Right. You're welcome to read our pleadings. We made both

arguments. We think that the Commission can under the 251(d)(2), the impairment provision of the law, look at other factors, the added minimum analysis. So the Commission could decide on that basis and perhaps breathing some life into Section 706, which admonishes the Commission to promote new technologies and so on. Determine that it was good public policy to promote facilities-based competition in deployment, to interpret 251(d)(2) that way.

I also think that the Commission could also say for new investment, new investment situations, there isn't an impairment. I realize that some will disagree with that approach. But I think it hinges fundamentally on what you think the relevant market is. While I again, as Intel, we would love for there to be many competitors in the broadband market, our view at this point is that it would be better to have two robust competitors than to have one competitor.

Question [off-mike]: A follow up, Peter. When you talk about new investment, are you talking about fiber to the home or are you talking about an NGDLC deployment? If so, give an example where a CLEC would be [inaudible].

[End of Tape 1]

[Tape 2 begins here.]

Continuation of "How to Access a Fiber-Fed Loop in Ten Days" - 9:15 a.m. - 10:30 a.m.

Male Voice: -- situations, then there is no impairment. But I also feel for legal, I personally think that the broadband provision, this is free and legal advisement is worth what it's going to cost you. I think the Commission is going to win easily on the impairment

analysis because of the at a minimum provisions, which, by the way, were put in place, those interpretations were not of the Powell Commission. They were the Kennard Commission. It was the previous commission that said, oh, by the way, we think under 251(d)(2) at a minimum analysis, we can consider factors like the impact on facilities deployment and so on.

Jeff Goldthorp: Any other questions from the audience? Well, then I'll thank the panelists again. Thank you all for being here. Thank you to ALT for being our host and Jonathan.

Male Voice: Did I dismiss you all yet? Hang on a second.

[LAUGHTER].

Male Voice: Hang on. I actually want, I know I'm supposed to just move the program along. And I promised myself that I would not do editorializing, but I got a captive audience, and I can't resist. And frankly -

Male Voice: (Indiscernible).

[LAUGHTER].

Male Voice [Jeff Goldthorp]: I do want to thank you folks for participating (indiscernible), particularly Peter for putting himself as the lone voice among this crowd.

And I got to say this is exactly the kind of dialogue we had hoped and prayed that the FCC would've engaged in before they rushed to judgment on the access to broadband loop question. I think it's pretty evident that when you get a bunch of engineers together. And frankly we wanted an engineer or two, when you get them together, there's a much more reasoned, rational approach that could be developed on these, you know, complicated issues than when you have a bunch of lawyers fighting, you know, tooth and nail for their own result.

And I got to say, you know, a lot of what Peter said doesn't give me as much heartburn. And frankly I think to some extent it jives with the spirit of the vote that the three FCC commissioners who voted for this portion of the FCC order seem to have expressed.

Although frankly I believe that the three FCC commissioners voted for something that was, in fact, somewhat more pro-competitive than what the high tech broadband coalition put on the table. For instance, we know the Bells are going to be obligated to unbundled dark fiber. That was not part and parcel to the high tech broadband coalition proposal. And there were a couple other issues like that.

But bottom line for us is not so much whether or not the FCC adopts something similar to the high tech broadband coalition proposal. It's our grave concern that there's going to be a disconnect between the spirit of the vote, and what the high tech broadband coalition thinks the FCC may have voted, and what frankly Verizon, and SBC, and the other Bell companies think that the FCC has given them. Those are the detail that we're concerned about, and that's why we had frankly hoped that the order would have been released by today. And we thought this would be an opportunity for us to actually put some meat on the bones and flush out what the decision actually means in real world technical terms.

How are we going to get access to next generation digital loop carrier systems going forward? But obviously it wasn't released today, before today. And a lot of what we're doing is somewhat speculative. But the 64 billion, you know, they used to talk about $64,000 question. For us, it's the $64 billion question. We've got about, frankly $71 billion of investment in facilities. Most of that is in our own advance services technology d-slams (phonetic sp.) packets, which is local fiber facilities. And if we don't have access to that fiber feeder portion because it's somehow been packetized and we're miraculously

no longer subject to unbundling or CLEC access. Consumers never see the fruits of the $71 billion of investment that we put into the ground.

So having given that editorial comment, I do want to say a couple more things about the program going forward.

I unfortunately, there was actually one program, one panel I wanted to sit in for, and that was the "Regulatorily Incorrect With..." panel. A couple of my former bosses are going to be on that panel. The idea for that panel is we were going to get Bill Maher to moderate the panel. And it was going to be "Regulatorily Incorrect with Bill Maher."

Well, Bill Maher had to bow out, for those who don't remember, who don't get cable television, whatever it was, ABC, I think. He used to run that politically incorrect program. But we've got, frankly we've got Jeff Carlisle doing it, who I think is going to be hilarious. I've seen him do these things before. He hasn't told us yet if he's going to do it in the style of Dick Cavat, or William F. Buckley, or Ollie G., the new star of HBO. But I'm sure it's going to be very exciting. I, unfortunately, have to go over to Capitol Hill. But hopefully we're going to record the session so I could hear it after the fact.

The idea was to have the bureau chiefs and former, the past four bureau chiefs debate the state of the regulatory landscape and see how things are going to progress going forward. We still do have Larry Strickling and Dorothy Attwood, the past two bureau chiefs, and we added a few other industry reps on either side of the issue to debate the policy issues.

But for now I want to turn your attention to -- oh, actually one more, one more warning about activities ahead. At 12:30, there will be a members only discussion. We'll be electing our new ALTS board members. This, this 12:30 to 1:30 session is open to all ALT members, both network members and their affiliate members, professional members, etceteras. But obviously only network members are going to be allowed to vote.

And this is going to be an opportunity, I think, for us to think outside the box. And I don't mean that in any pun. Nothing to do with the box. But this is going to be our opportunity to brainstorm. Rarely do we, this is our once a year opportunity to get together and really brainstorm on how envision policy issues going forward.

And I want to make this more than just a regular policy call. I want you to come prepared with, even if you think it might not fully fleshed out crazy ideas, I want us

to sit down and brainstorm and think about how we can move forward over the next year or so.

Now having said that and having, I think, I anticipated that Jeff Carlisle may do an Ollie G type kind of presentation at 11 o'clock. I'm going to hand it over to John Windhausen at the back of the room who will be interviewing not Ollie G, but Wally G. Wally Griffin is the CEO of PacWest Communications. And he'll be talking about where his company is going now. So turn your attention to the back of the room, and John will take it over from there. Thanks, folks.